

V. REMARKS

Claims 2, 4 and 5 are objected to because of informalities. The claims are amended to obviate the objection. Withdrawal of the objection is respectfully requested.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as unpatentable over Seddon (U.S. Patent No: 964,062) in view of either Kobusch (U.S. Patent No: 6,146,073) or Sundh (U.S. Patent No: 1,830,918). The rejection is respectfully traversed.

With regard to Seddon, the United States Patent and Trademark Office acknowledges that this reference fails to disclose expressly at least one coil to be of smaller diameter than the male screw at the side where the male screw enters the female screw.

With regard to Kobusch, Fig. 2 of the reference discloses the diameter d_1 of one turn of the wire-type screw thread insert 10 is smaller than the diameter d of remaining turns. This facilitates insertion of the insert into the tapped hole (column 3, lines 26 to 27). In short, the one turn of small diameter d_1 of the insert 10 is not on the insertion side of a male screw. If one tries to insert a male screw into the insert 10 from bottom upward, the male screw will be prevented by the tang 19 (see Fig. 1) from inserting.

With regard to Sundh, whenever the nut is subjected to external forces tending to displace it, a spring holds the nut normally against movement on the bolt to which it is applied and to engage the bolt with an added clamping force.

None of the references including the above three references discloses "at least one coil of the inset at the side where a male screw enters has a smaller diameter than that of the male screw."

It is respectfully submitted that that none of the applied art, alone or in combination, teaches or suggests the features of claim 1 as now amended and discussed above. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Furthermore, in the U.S Patent No. 964,062 to Seddon, one end of the helical spring is secured to a slot or groove formed in the nut. However, the helical spring has the same radius over the whole range, wound around a bolt. Therefore, Seddon does not have features of the present invention ("the diameter of at least one turn at one end of the insert is smaller than the diameter of the male screw" as recited in claim 1).

Additionally, Applicant provides the following support for amended claim 1:

(a) Support for "so as to adhere to the male screw and generate a loosening prevention force":

(1) page 3, line 30 to 32, "... so that the insert 30 can be closely wound around on male screw 40 by spring characteristic."

(2) page 4, line 18 to 22, "the insert 30 in contact with the male screw 40 is urged to rotate together with the screw 40 by frictional force, since the diameter of the insert 30 is smaller than that of the screw 40.

(3) page 5, line 21 to 24, "the frictional force between the insert 30 and male screw 40 increases and become great enough to prevent dislocation."

(4) page 6, line 33 to page 7, line 4, "A small-diameter range B of the insert 30 is an essential factor that settles the force with which the insert 30 is wound on the male screw 40. The range B requires at least one turn and preferably two or more turns."

(b) Support for "the diameter of the remaining part of the insert is larger than the diameter of the male screw":

(1) page 3, line 33 to page 4, line 2, "The diameter of other parts of the insert 30 may be greater than that of the male screw 40."

(2) page 6, line 22 to 26, "... a large-diameter portion A is brought intimately into contact with the female screw 21 by spring characteristics, and its movement is prevented by the force of friction with the female screw 21."

(3) page 7, line 5 to 8, "... adhesion of the insert 30 to the female screw 21 that produces satisfactory frictional force A, and preferably two or more turns."

Claims 2 and 5 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are

allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claim 3 is rejected under 35 U.S.C. 103(a) as unpatentable over Seddon in view of Sundh or Sundh in view of Seddon and further in view of Marshall (U.S. Patent No: 422,027). The rejection is respectfully traversed.

Claim 3 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 3 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as unpatentable over Seddon in view of Sundh or Sundh in view of Seddon and further in view of Unsworth et al. (US 2001/0053317). The rejection is respectfully traversed.

Claims 4 and 5 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

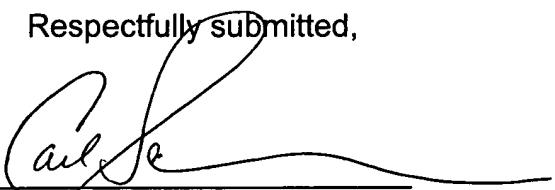
Withdrawal of the rejection is respectfully requested.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

By:


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Enclosure(s): Amendment Transmittal
 Abstract of the Disclosure

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